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Information inequalities for characteristics of group-sequential test with groups of observations of random size

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Abstract

© 2016, Allerton Press, Inc.We consider a group-sequential test for testing a simple hypothesis against a composite one-sided alternative, which defines the following sequential statistical procedure: At each stage a random number of independent identically distributed observations (a group of observations) is observed and, based on the collected data, the decision to accept or to reject the hypothesis or to continue the observation is made. For the tests with finite number of observations, we prove the existence of the derivative of the power function and establish the information-type inequalities relating that derivative to other characteristics of the test: the average number of observations and the type I error.

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Keywords

derivative of power function, group sequential test, groups of observations of random size, sequential analysis, sequential hypothesis testing